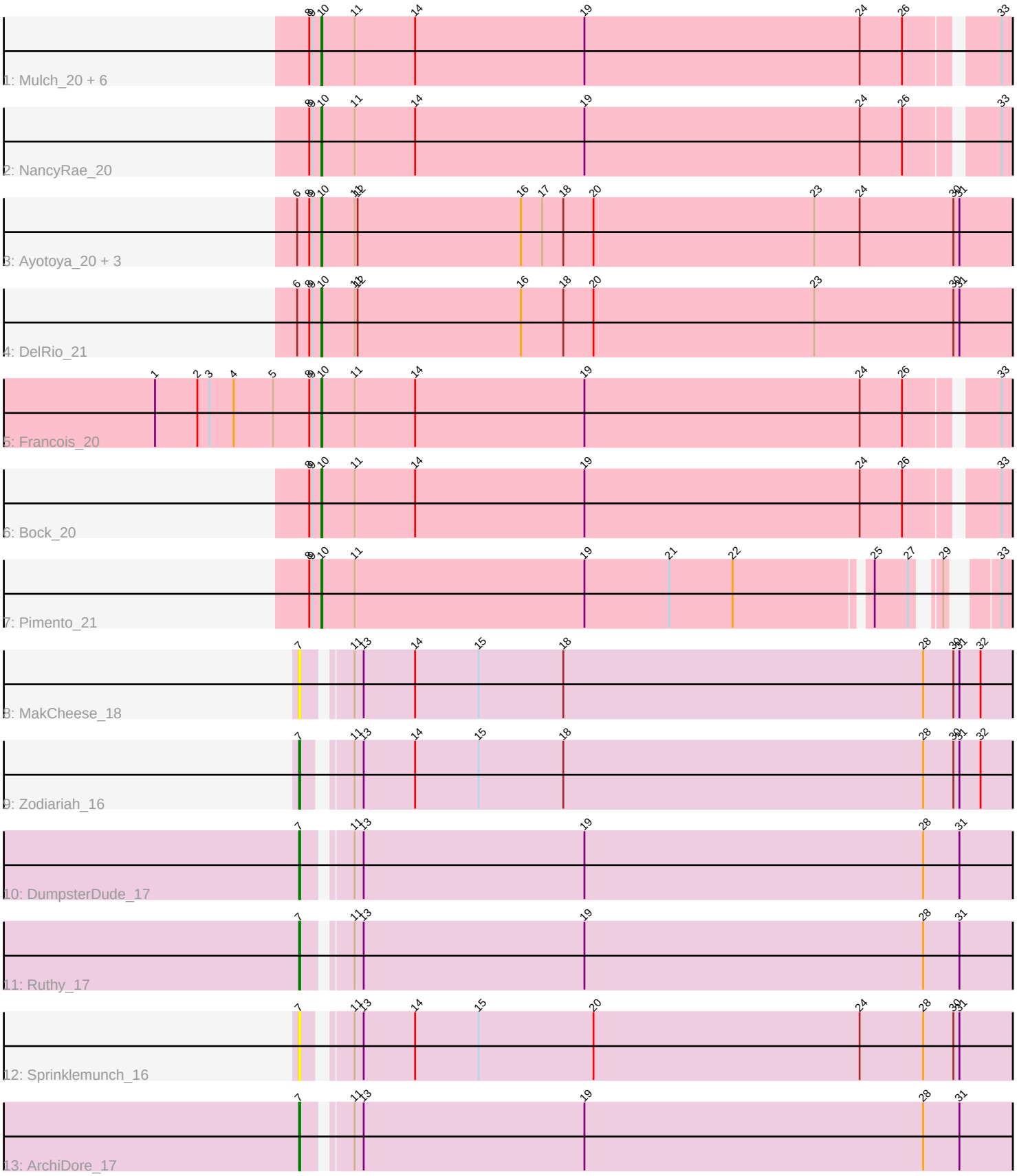
Zoomed Pham 348030



Note: Tracks are now grouped by subcluster and scaled. Switching in subcluster is indicated by changes in track color. Track scale is now set by default to display the region 30 bp upstream of start 1 to 30 bp downstream of the last possible start. If this default region is judged to be packed too tightly with annotated starts, the track will be further scaled to only show that region of the ORF with annotated starts. This action will be indicated by adding "Zoomed" to the title. For starts, yellow indicates the location of called starts comprised solely of Glimmer/GeneMark auto-annotations, green indicates the location of called starts with at least 1 manual gene annotation.

Pham 348030 Report

This analysis was run 11/14/26 on database version 672.

Pham number 348030 has 22 members, 3 are drafts.

Phages represented in each track:
• Track 1 : Mulch_20, Brylie_20, SussRoloMann_20, Nadeem_20, WheatThin_20, BetterKatz_20, Parada_20
• Track 2 : NancyRae_20
• Track 3 : Ayotoya_20, GrandSlam_20, Chop_20, Hamood_20
• Track 4 : DelRio_21
• Track 5 : Francois_20
• Track 6 : Bock_20
• Track 7 : Pimento_21
• Track 8 : MakCheese_18
• Track 9 : Zodiariah_16
• Track 10 : DumpsterDude_17
• Track 11 : Ruthy_17
• Track 12 : Sprinklemunch_16
• Track 13 : ArchiDore_17

Summary of Final Annotations (See graph section above for start numbers):

The start number called the most often in the published annotations is 10, it was called in 15 of the 19 non-draft genes in the pham.

Genes that call this "Most Annotated" start:
• Ayotoya_20, BetterKatz_20, Bock_20, Brylie_20, Chop_20, DelRio_21, Francois_20, GrandSlam_20, Hamood_20, Mulch_20, Nadeem_20, NancyRae_20, Parada_20, Pimento_21, SussRoloMann_20, WheatThin_20,

Genes that have the "Most Annotated" start but do not call it:
•

Genes that do not have the "Most Annotated" start:
• ArchiDore_17, DumpsterDude_17, MakCheese_18, Ruthy_17, Sprinklemunch_16, Zodiariah_16,

Summary by start number:

Start 7:
• Found in 6 of 22 (27.3%) of genes in pham
• Manual Annotations of this start: 4 of 19
• Called 100.0% of time when present
• Phage (with cluster) where this start called: ArchiDore_17 (DW), DumpsterDude_17 (DW), MakCheese_18 (DW), Ruthy_17 (DW), Sprinklemunch_16 (DW), Zodiariah_16 (DW),

Start 10:
• Found in 16 of 22 (72.7%) of genes in pham
• Manual Annotations of this start: 15 of 19
• Called 100.0% of time when present
• Phage (with cluster) where this start called: Ayotoya_20 (DI), BetterKatz_20 (DI), Bock_20 (DI), Brylie_20 (DI), Chop_20 (DI), DelRio_21 (DI), Francois_20 (DI), GrandSlam_20 (DI), Hamood_20 (DI), Mulch_20 (DI), Nadeem_20 (DI), NancyRae_20 (DI), Parada_20 (DI), Pimento_21 (DI), SussRoloMann_20 (DI), WheatThin_20 (DI),

Summary by clusters:

There are 2 clusters represented in this pham: DW, DI,

Info for manual annotations of cluster DI:
•Start number 10 was manually annotated 15 times for cluster DI.

Info for manual annotations of cluster DW:
•Start number 7 was manually annotated 4 times for cluster DW.

Gene Information:

Gene: ArchiDore_17 Start: 10209, Stop: 15176, Start Num: 7
Candidate Starts for ArchiDore_17:
(Start: 7 @10209 has 4 MA's), (11, 10248), (13, 10257), (19, 10476), (28, 10812), (31, 10848), (35, 10968), (39, 11052), (40, 11055), (44, 11109), (46, 11139), (50, 11187), (52, 11211), (55, 11244), (56, 11250), (59, 11274), (61, 11301), (63, 11340), (69, 11514), (76, 11592), (77, 11610), (78, 11613), (81, 11649), (82, 11670), (89, 11805), (91, 11847), (92, 11850), (98, 11937), (99, 11946), (103, 11994), (111, 12066), (118, 12141), (125, 12222), (126, 12225), (131, 12297), (132, 12306), (133, 12348), (134, 12381), (136, 12411), (142, 12543), (144, 12576), (150, 12675), (151, 12696), (153, 12732), (155, 12786), (156, 12810), (157, 12840), (158, 12864), (160, 12900), (164, 12960), (165, 12996), (167, 13062), (172, 13158), (176, 13221), (185, 13389), (187, 13425), (188, 13506), (189, 13566), (190, 13611), (194, 13812), (199, 13965), (201, 14007), (203, 14076), (204, 14103), (213, 14397), (224, 14742), (226, 14835), (227, 14841), (228, 14886), (229, 14931), (230, 14952), (231, 14991), (232, 15012), (236, 15126), (238, 15165),

Gene: Ayotoya_20 Start: 11819, Stop: 17074, Start Num: 10
Candidate Starts for Ayotoya_20:
(6, 11795), (8, 11807), (9, 11810), (Start: 10 @11819 has 15 MA's), (11, 11852), (12, 11855), (16, 12017), (17, 12038), (18, 12059), (20, 12089), (23, 12308), (24, 12353), (30, 12446), (31, 12452), (34, 12539), (35, 12572), (39, 12656), (43, 12701), (44, 12713), (45, 12728), (46, 12743), (51, 12797), (58, 12875), (62, 12920), (63, 12944), (67, 13052), (68, 13094), (70, 13133), (76, 13196), (77, 13214), (82, 13274), (89, 13409), (95, 13517), (97, 13529), (99, 13550), (107, 13631), (112, 13673), (114, 13691),

(116, 13721), (118, 13745), (121, 13793), (124, 13811), (125, 13826), (126, 13829), (132, 13910), (134, 13985), (137, 14021), (142, 14147), (143, 14168), (145, 14192), (147, 14204), (150, 14279), (151, 14300), (157, 14444), (159, 14477), (160, 14504), (161, 14510), (164, 14564), (165, 14600), (166, 14657), (168, 14687), (170, 14738), (174, 14795), (178, 14885), (181, 14912), (182, 14915), (185, 14993), (186, 15002), (191, 15281), (194, 15410), (202, 15620), (205, 15713), (207, 15845), (208, 15866), (211, 15974), (215, 16073), (217, 16157), (225, 16703), (227, 16736), (228, 16781), (230, 16847), (233, 16937), (235, 17012), (237, 17057),

Gene: BetterKatz_20 Start: 11757, Stop: 16547, Start Num: 10
Candidate Starts for BetterKatz_20:
(8, 11745), (9, 11748), (Start: 10 @11757 has 15 MA's), (11, 11790), (14, 11850), (19, 12018), (24, 12291), (26, 12333), (33, 12414), (37, 12480), (49, 12606), (53, 12639), (57, 12684), (63, 12744), (64, 12777), (71, 12918), (72, 12927), (84, 13059), (86, 13104), (93, 13215), (97, 13266), (105, 13323), (109, 13365), (110, 13371), (122, 13485), (123, 13488), (132, 13593), (134, 13668), (135, 13680), (137, 13704), (147, 13887), (150, 13962), (151, 13983), (153, 14019), (157, 14127), (159, 14160), (160, 14187), (161, 14193), (163, 14205), (164, 14247), (165, 14283), (166, 14340), (168, 14370), (172, 14445), (174, 14478), (178, 14568), (182, 14598), (185, 14676), (186, 14685), (188, 14793), (191, 14964), (194, 15093), (199, 15231), (207, 15540), (208, 15561), (211, 15669), (214, 15765), (222, 16077), (223, 16080), (227, 16209), (228, 16254), (230, 16320), (231, 16359), (233, 16410), (235, 16485), (237, 16530),

Gene: Bock_20 Start: 11507, Stop: 16297, Start Num: 10
Candidate Starts for Bock_20:
(8, 11495), (9, 11498), (Start: 10 @11507 has 15 MA's), (11, 11540), (14, 11600), (19, 11768), (24, 12041), (26, 12083), (33, 12164), (37, 12230), (49, 12356), (53, 12389), (57, 12434), (63, 12494), (64, 12527), (71, 12668), (72, 12677), (84, 12809), (86, 12854), (93, 12965), (97, 13016), (105, 13073), (109, 13115), (110, 13121), (122, 13235), (123, 13238), (132, 13343), (134, 13418), (135, 13430), (137, 13454), (142, 13580), (143, 13601), (147, 13637), (150, 13712), (151, 13733), (153, 13769), (157, 13877), (159, 13910), (160, 13937), (161, 13943), (163, 13955), (164, 13997), (165, 14033), (166, 14090), (168, 14120), (172, 14195), (174, 14228), (178, 14318), (182, 14348), (185, 14426), (186, 14435), (188, 14543), (191, 14714), (194, 14843), (199, 14981), (207, 15290), (208, 15311), (211, 15419), (214, 15515), (222, 15827), (223, 15830), (227, 15959), (228, 16004), (230, 16070), (231, 16109), (233, 16160), (235, 16235), (237, 16280),

Gene: Brylie_20 Start: 11504, Stop: 16288, Start Num: 10
Candidate Starts for Brylie_20:
(8, 11492), (9, 11495), (Start: 10 @11504 has 15 MA's), (11, 11537), (14, 11597), (19, 11765), (24, 12038), (26, 12080), (33, 12161), (37, 12227), (49, 12353), (53, 12386), (57, 12431), (63, 12491), (64, 12524), (71, 12665), (72, 12674), (84, 12806), (86, 12851), (93, 12962), (97, 13013), (105, 13070), (109, 13112), (110, 13118), (122, 13232), (123, 13235), (132, 13340), (134, 13415), (135, 13427), (137, 13451), (147, 13634), (150, 13709), (151, 13730), (153, 13766), (157, 13874), (159, 13907), (160, 13934), (161, 13940), (163, 13952), (164, 13994), (165, 14030), (166, 14087), (168, 14117), (172, 14192), (174, 14225), (178, 14315), (182, 14345), (185, 14423), (186, 14432), (188, 14540), (191, 14711), (194, 14840), (199, 14978), (207, 15287), (208, 15308), (211, 15416), (214, 15506), (222, 15818), (223, 15821), (227, 15950), (228, 15995), (230, 16061), (231, 16100), (233, 16151), (235, 16226), (237, 16271),

Gene: Chop_20 Start: 11567, Stop: 16822, Start Num: 10
Candidate Starts for Chop_20:
(6, 11543), (8, 11555), (9, 11558), (Start: 10 @11567 has 15 MA's), (11, 11600), (12, 11603), (16, 11765), (17, 11786), (18, 11807), (20, 11837), (23, 12056), (24, 12101), (30, 12194), (31, 12200), (34, 12287), (35, 12320), (39, 12404), (43, 12449), (44, 12461), (45, 12476), (46, 12491), (51, 12545), (58, 12623), (62, 12668), (63, 12692), (67, 12800), (68, 12842), (70, 12881), (76, 12944), (77, 12962), (82,

13022), (89, 13157), (95, 13265), (97, 13277), (99, 13298), (107, 13379), (112, 13421), (114, 13439), (116, 13469), (118, 13493), (121, 13541), (124, 13559), (125, 13574), (126, 13577), (132, 13658), (134, 13733), (137, 13769), (142, 13895), (143, 13916), (145, 13940), (147, 13952), (150, 14027), (151, 14048), (157, 14192), (159, 14225), (160, 14252), (161, 14258), (164, 14312), (165, 14348), (166, 14405), (168, 14435), (170, 14486), (174, 14543), (178, 14633), (181, 14660), (182, 14663), (185, 14741), (186, 14750), (191, 15029), (194, 15158), (202, 15368), (205, 15461), (207, 15593), (208, 15614), (211, 15722), (215, 15821), (217, 15905), (225, 16451), (227, 16484), (228, 16529), (230, 16595), (233, 16685), (235, 16760), (237, 16805),

Gene: DelRio_21 Start: 12041, Stop: 17296, Start Num: 10
Candidate Starts for DelRio_21:
(6, 12017), (8, 12029), (9, 12032), (Start: 10 @12041 has 15 MA's), (11, 12074), (12, 12077), (16, 12239), (18, 12281), (20, 12311), (23, 12530), (30, 12668), (31, 12674), (34, 12761), (35, 12794), (36, 12824), (39, 12878), (43, 12923), (44, 12935), (45, 12950), (46, 12965), (51, 13019), (58, 13097), (62, 13142), (63, 13166), (67, 13274), (68, 13316), (70, 13355), (76, 13418), (77, 13436), (80, 13460), (81, 13475), (82, 13496), (89, 13631), (95, 13739), (97, 13751), (99, 13772), (107, 13853), (112, 13895), (114, 13913), (116, 13943), (118, 13967), (121, 14015), (125, 14048), (126, 14051), (132, 14132), (134, 14207), (137, 14243), (142, 14369), (143, 14390), (145, 14414), (147, 14426), (150, 14501), (151, 14522), (157, 14666), (159, 14699), (160, 14726), (161, 14732), (164, 14786), (165, 14822), (166, 14879), (168, 14909), (170, 14960), (174, 15017), (178, 15107), (181, 15134), (182, 15137), (185, 15215), (186, 15224), (191, 15503), (194, 15632), (202, 15842), (205, 15935), (207, 16067), (208, 16088), (211, 16196), (215, 16295), (225, 16925), (227, 16958), (228, 17003), (230, 17069), (233, 17159), (235, 17234), (237, 17279),

Gene: DumpsterDude_17 Start: 10190, Stop: 15148, Start Num: 7
Candidate Starts for DumpsterDude_17:
(Start: 7 @10190 has 4 MA's), (11, 10229), (13, 10238), (19, 10457), (28, 10793), (31, 10829), (34, 10916), (35, 10949), (39, 11033), (40, 11036), (44, 11090), (46, 11120), (47, 11141), (48, 11150), (50, 11168), (52, 11192), (55, 11225), (56, 11231), (59, 11255), (61, 11282), (63, 11321), (69, 11495), (73, 11546), (76, 11573), (77, 11591), (78, 11594), (81, 11630), (82, 11651), (89, 11786), (92, 11831), (98, 11918), (99, 11927), (100, 11930), (103, 11975), (111, 12047), (117, 12107), (118, 12122), (119, 12146), (125, 12203), (126, 12206), (128, 12242), (131, 12278), (132, 12287), (133, 12329), (134, 12362), (142, 12524), (150, 12656), (151, 12677), (153, 12713), (155, 12767), (157, 12821), (158, 12845), (160, 12881), (164, 12941), (167, 13043), (171, 13136), (172, 13139), (173, 13169), (175, 13184), (177, 13238), (178, 13262), (179, 13268), (181, 13289), (183, 13346), (185, 13370), (189, 13547), (192, 13694), (194, 13790), (198, 13880), (199, 13937), (204, 14075), (213, 14369), (218, 14477), (224, 14714), (226, 14807), (227, 14813), (228, 14858), (229, 14903), (230, 14924), (231, 14963), (232, 14984), (236, 15098), (237, 15131), (238, 15137),

Gene: Francois_20 Start: 11521, Stop: 16311, Start Num: 10
Candidate Starts for Francois_20:
(1, 11356), (2, 11398), (3, 11410), (4, 11434), (5, 11473), (8, 11509), (9, 11512), (Start: 10 @11521 has 15 MA's), (11, 11554), (14, 11614), (19, 11782), (24, 12055), (26, 12097), (33, 12178), (37, 12244), (49, 12370), (53, 12403), (57, 12448), (63, 12508), (64, 12541), (71, 12682), (72, 12691), (84, 12823), (86, 12868), (93, 12979), (97, 13030), (105, 13087), (109, 13129), (110, 13135), (120, 13234), (122, 13249), (123, 13252), (132, 13357), (134, 13432), (135, 13444), (137, 13468), (142, 13594), (143, 13615), (145, 13639), (147, 13651), (150, 13726), (151, 13747), (153, 13783), (157, 13891), (159, 13924), (160, 13951), (161, 13957), (163, 13969), (164, 14011), (165, 14047), (166, 14104), (172, 14209), (174, 14242), (178, 14332), (181, 14359), (182, 14362), (185, 14440), (186, 14449), (188, 14557), (191, 14728), (194, 14857), (199, 14995), (207, 15304), (208, 15325), (211, 15433), (216, 15544), (222, 15841), (223, 15844), (227, 15973), (228, 16018), (230, 16084), (231, 16123), (233, 16174), (235, 16249), (237, 16294),

Gene: GrandSlam_20 Start: 11567, Stop: 16822, Start Num: 10
Candidate Starts for GrandSlam_20:
(6, 11543), (8, 11555), (9, 11558), (Start: 10 @11567 has 15 MA's), (11, 11600), (12, 11603), (16, 11765), (17, 11786), (18, 11807), (20, 11837), (23, 12056), (24, 12101), (30, 12194), (31, 12200), (34, 12287), (35, 12320), (39, 12404), (43, 12449), (44, 12461), (45, 12476), (46, 12491), (51, 12545), (58, 12623), (62, 12668), (63, 12692), (67, 12800), (68, 12842), (70, 12881), (76, 12944), (77, 12962), (82, 13022), (89, 13157), (95, 13265), (97, 13277), (99, 13298), (107, 13379), (112, 13421), (114, 13439), (116, 13469), (118, 13493), (121, 13541), (124, 13559), (125, 13574), (126, 13577), (132, 13658), (134, 13733), (137, 13769), (142, 13895), (143, 13916), (145, 13940), (147, 13952), (150, 14027), (151, 14048), (157, 14192), (159, 14225), (160, 14252), (161, 14258), (164, 14312), (165, 14348), (166, 14405), (168, 14435), (170, 14486), (174, 14543), (178, 14633), (181, 14660), (182, 14663), (185, 14741), (186, 14750), (191, 15029), (194, 15158), (202, 15368), (205, 15461), (207, 15593), (208, 15614), (211, 15722), (215, 15821), (217, 15905), (225, 16451), (227, 16484), (228, 16529), (230, 16595), (233, 16685), (235, 16760), (237, 16805),

Gene: Hamood_20 Start: 11567, Stop: 16822, Start Num: 10
Candidate Starts for Hamood_20:
(6, 11543), (8, 11555), (9, 11558), (Start: 10 @11567 has 15 MA's), (11, 11600), (12, 11603), (16, 11765), (17, 11786), (18, 11807), (20, 11837), (23, 12056), (24, 12101), (30, 12194), (31, 12200), (34, 12287), (35, 12320), (39, 12404), (43, 12449), (44, 12461), (45, 12476), (46, 12491), (51, 12545), (58, 12623), (62, 12668), (63, 12692), (67, 12800), (68, 12842), (70, 12881), (76, 12944), (77, 12962), (82, 13022), (89, 13157), (95, 13265), (97, 13277), (99, 13298), (107, 13379), (112, 13421), (114, 13439), (116, 13469), (118, 13493), (121, 13541), (124, 13559), (125, 13574), (126, 13577), (132, 13658), (134, 13733), (137, 13769), (142, 13895), (143, 13916), (145, 13940), (147, 13952), (150, 14027), (151, 14048), (157, 14192), (159, 14225), (160, 14252), (161, 14258), (164, 14312), (165, 14348), (166, 14405), (168, 14435), (170, 14486), (174, 14543), (178, 14633), (181, 14660), (182, 14663), (185, 14741), (186, 14750), (191, 15029), (194, 15158), (202, 15368), (205, 15461), (207, 15593), (208, 15614), (211, 15722), (215, 15821), (217, 15905), (225, 16451), (227, 16484), (228, 16529), (230, 16595), (233, 16685), (235, 16760), (237, 16805),

Gene: MakCheese_18 Start: 9949, Stop: 14994, Start Num: 7
Candidate Starts for MakCheese_18:
(Start: 7 @9949 has 4 MA's), (11, 9988), (13, 9997), (14, 10048), (15, 10111), (18, 10195), (28, 10552), (30, 10582), (31, 10588), (32, 10609), (34, 10675), (35, 10708), (39, 10792), (40, 10795), (42, 10822), (44, 10849), (46, 10879), (47, 10900), (50, 10927), (55, 10984), (56, 10990), (59, 11014), (61, 11041), (62, 11056), (63, 11080), (65, 11143), (69, 11254), (76, 11332), (77, 11350), (78, 11353), (81, 11389), (82, 11410), (85, 11476), (89, 11545), (90, 11581), (91, 11587), (92, 11590), (94, 11620), (98, 11677), (99, 11686), (100, 11689), (111, 11806), (112, 11809), (117, 11866), (118, 11881), (125, 11962), (126, 11965), (132, 12046), (133, 12088), (138, 12169), (142, 12283), (144, 12316), (145, 12328), (146, 12334), (150, 12415), (152, 12463), (153, 12472), (156, 12550), (157, 12580), (158, 12604), (160, 12640), (162, 12649), (164, 12700), (165, 12736), (167, 12802), (168, 12823), (171, 12895), (172, 12898), (173, 12928), (174, 12931), (177, 12997), (178, 13021), (180, 13039), (184, 13123), (185, 13129), (186, 13138), (189, 13306), (194, 13540), (196, 13600), (197, 13627), (200, 13705), (206, 13876), (209, 14047), (221, 14470), (224, 14560), (226, 14653), (227, 14659), (228, 14704), (229, 14749), (230, 14770), (231, 14809), (234, 14923), (235, 14932), (236, 14944), (238, 14983),

Gene: Mulch_20 Start: 11504, Stop: 16288, Start Num: 10
Candidate Starts for Mulch_20:
(8, 11492), (9, 11495), (Start: 10 @11504 has 15 MA's), (11, 11537), (14, 11597), (19, 11765), (24, 12038), (26, 12080), (33, 12161), (37, 12227), (49, 12353), (53, 12386), (57, 12431), (63, 12491), (64, 12524), (71, 12665), (72, 12674), (84, 12806), (86, 12851), (93, 12962), (97, 13013), (105, 13070), (109, 13112), (110, 13118), (122, 13232), (123, 13235), (132, 13340), (134, 13415), (135, 13427), (137, 13451), (147, 13634), (150, 13709), (151, 13730), (153, 13766), (157, 13874), (159, 13907),

(160, 13934), (161, 13940), (163, 13952), (164, 13994), (165, 14030), (166, 14087), (168, 14117), (172, 14192), (174, 14225), (178, 14315), (182, 14345), (185, 14423), (186, 14432), (188, 14540), (191, 14711), (194, 14840), (199, 14978), (207, 15287), (208, 15308), (211, 15416), (214, 15506), (222, 15818), (223, 15821), (227, 15950), (228, 15995), (230, 16061), (231, 16100), (233, 16151), (235, 16226), (237, 16271),

Gene: Nadeem_20 Start: 11504, Stop: 16288, Start Num: 10
Candidate Starts for Nadeem_20:
(8, 11492), (9, 11495), (Start: 10 @11504 has 15 MA's), (11, 11537), (14, 11597), (19, 11765), (24, 12038), (26, 12080), (33, 12161), (37, 12227), (49, 12353), (53, 12386), (57, 12431), (63, 12491), (64, 12524), (71, 12665), (72, 12674), (84, 12806), (86, 12851), (93, 12962), (97, 13013), (105, 13070), (109, 13112), (110, 13118), (122, 13232), (123, 13235), (132, 13340), (134, 13415), (135, 13427), (137, 13451), (147, 13634), (150, 13709), (151, 13730), (153, 13766), (157, 13874), (159, 13907), (160, 13934), (161, 13940), (163, 13952), (164, 13994), (165, 14030), (166, 14087), (168, 14117), (172, 14192), (174, 14225), (178, 14315), (182, 14345), (185, 14423), (186, 14432), (188, 14540), (191, 14711), (194, 14840), (199, 14978), (207, 15287), (208, 15308), (211, 15416), (214, 15506), (222, 15818), (223, 15821), (227, 15950), (228, 15995), (230, 16061), (231, 16100), (233, 16151), (235, 16226), (237, 16271),

Gene: NancyRae_20 Start: 11504, Stop: 16294, Start Num: 10
Candidate Starts for NancyRae_20:
(8, 11492), (9, 11495), (Start: 10 @11504 has 15 MA's), (11, 11537), (14, 11597), (19, 11765), (24, 12038), (26, 12080), (33, 12161), (37, 12227), (49, 12353), (53, 12386), (57, 12431), (63, 12491), (64, 12524), (71, 12665), (72, 12674), (84, 12806), (86, 12851), (93, 12962), (97, 13013), (105, 13070), (109, 13112), (110, 13118), (122, 13232), (123, 13235), (132, 13340), (134, 13415), (135, 13427), (137, 13451), (142, 13577), (147, 13634), (150, 13709), (151, 13730), (153, 13766), (157, 13874), (159, 13907), (160, 13934), (161, 13940), (164, 13994), (165, 14030), (166, 14087), (168, 14117), (172, 14192), (174, 14225), (178, 14315), (182, 14345), (185, 14423), (186, 14432), (188, 14540), (191, 14711), (194, 14840), (199, 14978), (207, 15287), (208, 15308), (211, 15416), (214, 15512), (222, 15824), (223, 15827), (227, 15956), (228, 16001), (230, 16067), (231, 16106), (233, 16157), (235, 16232), (237, 16277),

Gene: Parada_20 Start: 11504, Stop: 16288, Start Num: 10
Candidate Starts for Parada_20:
(8, 11492), (9, 11495), (Start: 10 @11504 has 15 MA's), (11, 11537), (14, 11597), (19, 11765), (24, 12038), (26, 12080), (33, 12161), (37, 12227), (49, 12353), (53, 12386), (57, 12431), (63, 12491), (64, 12524), (71, 12665), (72, 12674), (84, 12806), (86, 12851), (93, 12962), (97, 13013), (105, 13070), (109, 13112), (110, 13118), (122, 13232), (123, 13235), (132, 13340), (134, 13415), (135, 13427), (137, 13451), (147, 13634), (150, 13709), (151, 13730), (153, 13766), (157, 13874), (159, 13907), (160, 13934), (161, 13940), (163, 13952), (164, 13994), (165, 14030), (166, 14087), (168, 14117), (172, 14192), (174, 14225), (178, 14315), (182, 14345), (185, 14423), (186, 14432), (188, 14540), (191, 14711), (194, 14840), (199, 14978), (207, 15287), (208, 15308), (211, 15416), (214, 15506), (222, 15818), (223, 15821), (227, 15950), (228, 15995), (230, 16061), (231, 16100), (233, 16151), (235, 16226), (237, 16271),

Gene: Pimento_21 Start: 11708, Stop: 15985, Start Num: 10
Candidate Starts for Pimento_21:
(8, 11696), (9, 11699), (Start: 10 @11708 has 15 MA's), (11, 11741), (19, 11969), (21, 12053), (22, 12116), (25, 12242), (27, 12275), (29, 12290), (33, 12323), (41, 12413), (54, 12488), (57, 12512), (60, 12527), (66, 12611), (71, 12632), (72, 12641), (74, 12653), (75, 12665), (79, 12692), (82, 12713), (83, 12731), (86, 12743), (87, 12749), (101, 12878), (108, 12923), (127, 13073), (130, 13103), (139, 13268), (140, 13271), (141, 13274), (147, 13361), (148, 13364), (149, 13370), (154, 13481), (159, 13604), (164, 13691), (169, 13820), (172, 13889), (174, 13922), (182, 14042), (185, 14120), (186,

14129), (188, 14237), (191, 14408), (194, 14537), (199, 14675), (207, 14984), (208, 15005), (211, 15113), (214, 15203), (222, 15515), (223, 15518), (227, 15647), (228, 15692), (230, 15758), (231, 15797), (233, 15848), (235, 15923), (237, 15968),

Gene: Ruthy_17 Start: 10300, Stop: 15261, Start Num: 7
Candidate Starts for Ruthy_17:
(Start: 7 @10300 has 4 MA's), (11, 10339), (13, 10348), (19, 10567), (28, 10903), (31, 10939), (35, 11059), (39, 11143), (40, 11146), (44, 11200), (46, 11230), (48, 11260), (50, 11278), (52, 11302), (55, 11335), (56, 11341), (59, 11365), (61, 11392), (63, 11431), (69, 11605), (73, 11656), (76, 11683), (77, 11701), (78, 11704), (81, 11740), (82, 11761), (89, 11896), (92, 11941), (98, 12028), (99, 12037), (100, 12040), (103, 12085), (111, 12157), (113, 12175), (115, 12184), (120, 12274), (126, 12316), (128, 12352), (129, 12355), (131, 12388), (132, 12397), (133, 12439), (134, 12472), (142, 12634), (144, 12667), (150, 12766), (151, 12787), (153, 12823), (155, 12877), (156, 12901), (157, 12931), (158, 12955), (160, 12991), (164, 13051), (165, 13087), (167, 13153), (171, 13246), (172, 13249), (173, 13279), (175, 13294), (177, 13348), (178, 13372), (179, 13378), (181, 13399), (183, 13456), (185, 13480), (187, 13516), (188, 13597), (189, 13657), (190, 13702), (191, 13768), (193, 13837), (194, 13903), (198, 13993), (199, 14050), (204, 14188), (213, 14482), (218, 14590), (224, 14827), (226, 14920), (227, 14926), (228, 14971), (229, 15016), (230, 15037), (231, 15076), (236, 15211), (237, 15244), (238, 15250),

Gene: Sprinklemunch_16 Start: 9983, Stop: 15025, Start Num: 7
Candidate Starts for Sprinklemunch_16:
(Start: 7 @9983 has 4 MA's), (11, 10019), (13, 10028), (14, 10079), (15, 10142), (20, 10256), (24, 10520), (28, 10583), (30, 10613), (31, 10619), (34, 10706), (35, 10739), (38, 10787), (39, 10823), (40, 10826), (44, 10880), (46, 10910), (50, 10958), (55, 11015), (56, 11021), (59, 11045), (61, 11072), (62, 11087), (63, 11111), (65, 11174), (69, 11285), (76, 11363), (77, 11381), (78, 11384), (81, 11420), (82, 11441), (85, 11507), (89, 11576), (90, 11612), (91, 11618), (92, 11621), (94, 11651), (96, 11687), (99, 11717), (100, 11720), (102, 11756), (106, 11780), (111, 11837), (118, 11912), (119, 11936), (125, 11993), (132, 12077), (133, 12119), (138, 12200), (142, 12314), (144, 12347), (145, 12359), (146, 12365), (147, 12371), (155, 12557), (158, 12635), (164, 12731), (167, 12833), (168, 12854), (171, 12926), (172, 12929), (173, 12959), (174, 12962), (177, 13028), (178, 13052), (180, 13070), (184, 13154), (185, 13160), (186, 13169), (189, 13337), (194, 13571), (195, 13577), (196, 13631), (197, 13658), (224, 14591), (226, 14684), (227, 14690), (228, 14735), (229, 14780), (230, 14801), (231, 14840), (234, 14954), (236, 14975), (238, 15014),

Gene: SussRoloMann_20 Start: 11504, Stop: 16288, Start Num: 10
Candidate Starts for SussRoloMann_20:
(8, 11492), (9, 11495), (Start: 10 @11504 has 15 MA's), (11, 11537), (14, 11597), (19, 11765), (24, 12038), (26, 12080), (33, 12161), (37, 12227), (49, 12353), (53, 12386), (57, 12431), (63, 12491), (64, 12524), (71, 12665), (72, 12674), (84, 12806), (86, 12851), (93, 12962), (97, 13013), (105, 13070), (109, 13112), (110, 13118), (122, 13232), (123, 13235), (132, 13340), (134, 13415), (135, 13427), (137, 13451), (147, 13634), (150, 13709), (151, 13730), (153, 13766), (157, 13874), (159, 13907), (160, 13934), (161, 13940), (163, 13952), (164, 13994), (165, 14030), (166, 14087), (168, 14117), (172, 14192), (174, 14225), (178, 14315), (182, 14345), (185, 14423), (186, 14432), (188, 14540), (191, 14711), (194, 14840), (199, 14978), (207, 15287), (208, 15308), (211, 15416), (214, 15506), (222, 15818), (223, 15821), (227, 15950), (228, 15995), (230, 16061), (231, 16100), (233, 16151), (235, 16226), (237, 16271),

Gene: WheatThin_20 Start: 11504, Stop: 16288, Start Num: 10
Candidate Starts for WheatThin_20:
(8, 11492), (9, 11495), (Start: 10 @11504 has 15 MA's), (11, 11537), (14, 11597), (19, 11765), (24, 12038), (26, 12080), (33, 12161), (37, 12227), (49, 12353), (53, 12386), (57, 12431), (63, 12491), (64, 12524), (71, 12665), (72, 12674), (84, 12806), (86, 12851), (93, 12962), (97, 13013), (105, 13070),

(109, 13112), (110, 13118), (122, 13232), (123, 13235), (132, 13340), (134, 13415), (135, 13427), (137, 13451), (147, 13634), (150, 13709), (151, 13730), (153, 13766), (157, 13874), (159, 13907), (160, 13934), (161, 13940), (163, 13952), (164, 13994), (165, 14030), (166, 14087), (168, 14117), (172, 14192), (174, 14225), (178, 14315), (182, 14345), (185, 14423), (186, 14432), (188, 14540), (191, 14711), (194, 14840), (199, 14978), (207, 15287), (208, 15308), (211, 15416), (214, 15506), (222, 15818), (223, 15821), (227, 15950), (228, 15995), (230, 16061), (231, 16100), (233, 16151), (235, 16226), (237, 16271),

Gene: Zodiariah_16 Start: 9944, Stop: 15100, Start Num: 7
Candidate Starts for Zodiariah_16:
(Start: 7 @9944 has 4 MA's), (11, 9980), (13, 9989), (14, 10040), (15, 10103), (18, 10187), (28, 10544), (30, 10574), (31, 10580), (32, 10601), (34, 10667), (35, 10700), (39, 10784), (40, 10787), (44, 10841), (46, 10871), (50, 10919), (55, 10976), (56, 10982), (59, 11006), (61, 11033), (63, 11072), (65, 11135), (69, 11246), (76, 11324), (77, 11342), (78, 11345), (81, 11381), (82, 11402), (85, 11468), (88, 11531), (89, 11537), (90, 11573), (91, 11579), (92, 11582), (94, 11612), (99, 11678), (104, 11735), (111, 11798), (118, 11873), (125, 11954), (130, 12002), (132, 12038), (133, 12080), (134, 12113), (135, 12125), (142, 12275), (144, 12308), (145, 12320), (146, 12326), (147, 12332), (155, 12518), (158, 12596), (164, 12692), (165, 12728), (167, 12794), (168, 12815), (171, 12887), (172, 12890), (173, 12920), (174, 12923), (177, 12989), (178, 13013), (180, 13031), (184, 13115), (185, 13121), (186, 13130), (189, 13298), (194, 13532), (196, 13592), (197, 13619), (210, 14123), (212, 14252), (219, 14501), (220, 14552), (226, 14759), (227, 14765), (228, 14810), (229, 14855), (230, 14876), (231, 14915), (235, 15038), (236, 15050), (238, 15089),